

REMARKS

Pursuant to the present amendment, claims 1, 28, 29, 36, 38, 40-43, 45-47, 49-50 and 52 have been amended, claims 20, 21, 24-27 and 30-34 have been canceled, and new claim 89 has been added. Thus, claims 1, 3-19, 22-23, 28-29, 35-36, 38 and 40-89 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested.

Submitted herewith are revised drawings for Figures 1A, 2, 3, 4, 5, 6, 7A, 7B, 7C, 8A, 8B, 9 and 10. Withdrawal of the objection to the drawings is respectfully requested.

In the Office Action, claims 73-78 and 81-88 were allowed.

Claims 72 and 79-80 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Nakahara (JP 53132638A), Smith (U.S. Patent No. 4,557,112) and Kalina (U.S. Patent No. 5,953,918). Claims 72 and 79-80 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Nakahara, Smith or Kalina. Claims 1, 4, 24, 72 and 79-80 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Benson (U.S. Patent No. 6,581,384). Claims 1, 3-35, 72 and 79-80 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Benson. Claims 36, 38-40, 54, 72 and 79-80 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Stinger (U.S. Patent No. 6,857,268). Claims 36, 38-72 and 79-82 were rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Stinger. Applicants respectfully traverse the Examiner's rejections.

As an initial matter, the Examiner rejected claims 72 and 79-80 noting that 'the "adapted to' limitations recited therein are given no patentable weight, as no additional structural limitation(s) is recited thereby." Final Office Action at p. 2. Applicants respectfully disagree with the position taken by the Examiner.

First, it should be noted that the allowed claims, 73-78 and 81-88, contain “adapted to” language that is used to affirmatively recite various positive claim limitations set forth in those claims. Thus, the use of “adapted to” language is believed to be proper.

Second, the use of “adapted to” language was specifically approved by the Board of Patent Appeals and Interferences in an appeal taken in the application that resulted in U.S. Patent No. 6,666,754. In the appeal of that case, the Board of Patent Appeals and Interferences did not sustain the Examiner’s rejection under 35 U.S.C. § 112 for the use of the terminology “adapted to” in the claims at issue in that case. Decision on Appeal dated April 25, 2003. More specifically, in that case, the Examiner’s rationale for the Section 112 rejection was as follows:

“The use of the terminology ‘adapted to’ makes the claim vague and indefinite because the scope of the claims cannot be ascertained, since it has been held the recitation that an element is ‘adapted to’ perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 U.S.P.Q. 138.

Decision on Appeal, p. 4. In reversing the Examiner’s claim rejections under 35 U.S.C. § 112, the Board noted:

“The use of the terminology ‘adapted to’ in claim 21 does not render claims 21-32 vague and indefinite since the scope of the claim can be ascertained. As set forth by the Examiner, the recitation that an element is ‘adapted to’ perform a function is a limitation which requires only that the structure be able to perform the function. As such, the scope of the claims can be ascertained with a reasonable degree of precision and predictability.

Decision on Appeal, pp. 4-5. The use of “adapted to” language is also supported by the statements of the Board of Patent Appeals and Interferences in *Ex Parte Robert-A. Ollar*, 1994 WL 1687107, Bd. Pat .App & Interf., 1994, which states:

“On the other hand, we are aware of support for a holding that ‘adapted to’ and ‘whereby’ clauses in claims further limit the claimed subject matter and should not be disregarded. For example, see *In re Venezia*, 530 F.2d 956, 958-59, 189 U.S.P.Q. 149, 151-52 (CCPA 1976). *Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801, 14 U.S.P.Q.2d 1871, 1876 (Fed. Cir. 1990) recognizes (emphasis added) that: ... by deleting the preamble and all limitations that include ‘adapted

to,’ ‘whereby,’ and ‘thereby’ ... the claims are reduced to mere collections of parts.”

In view of the foregoing, it is respectfully submitted that the use of the “adapted to” language in the present case is proper. The scope of the claims containing the limitation is readily understandable. Thus, the limitation associated with such language must be considered a positively recited limitation. With this understanding, it is respectfully submitted that claims 72 and 79-80 are allowable for the reasons set forth in the previous response filed in this application.

It is respectfully submitted that amended independent claim 1 is allowable over Benson as well as the other art of record. Claim 1 has been amended to recite that the turbine is adapted to drive at least one generator to thereby produce electrical power. At no point does Benson disclose or even remotely suggest such a system.

Benson is understood to be directed to a system that may be employed to heat or cool a room. Abstract. The system in Benson utilizes waste heat to power the system. The system comprises an expander 9 that is used to drive a compressor 13. The compressor 13 uses the same working fluid, *i.e.*, a common refrigerant, as the expander 9. The compressor 13 compresses the working fluid from a low pressure, gaseous state to an intermediate pressure gas as part of a typical refrigeration cycle. Col. 4, ll. 17-48. As thus understood, it is respectfully submitted that amended independent claim 1 is allowable over Benson considered individually or in combination with any other prior art of record.

First, Benson clearly does not anticipate amended claim 1. The expander 9 is not adapted to drive a generator to produce electrical power. Second, the invention defined by amended independent claim 1 is not obvious in view of Benson or any other art of record. There is simply no suggestion in Benson to replace the compressor 13 with a generator that is used to produce

electrical power. It is submitted that, without the compressor 13, the system disclosed in Benson would simply not work for its intended purpose. Thus, it is difficult to imagine that one skilled in the art would be motivated to remove the compressor 13 disclosed therein for any purpose, much less to replace it with a generator that can be employed to produce electrical power. The fact that such a change would destroy the usefulness of the system in Benson for its intended purposes would suggest that it would not be obvious to one skilled in the art to make such a change.

It is respectfully submitted that any attempt to assert that the invention defined by amended independent claim 1 would have been obvious to one skilled in the art is necessarily based upon an improper use of hindsight using Applicants' disclosure as a roadmap. A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. Thus, it is believed that amended independent claim 1, and all claims depending therefrom, are in condition for immediate allowance.

Amended dependent claim 29 is likewise believed to be in condition for immediate allowance independently of claim 1. Claim 29 now recites that the system further comprises a suction drum positioned downstream of the first heat exchanger and upstream of the turbine, and that the supercritical vapor from the first heat exchanger is adapted to flow through the suction drum to the turbine. Support for this claim can be found in the specification at, for example, page 10, line 14 – page 11, line 8, and the associated drawings. Such a system is nowhere disclosed or suggested in Benson or any other art of record. In Benson, there is no suction drum

between the heater 2 and the expander 9, nor is there any suggestion for incorporation of such a suction drum in that position. Thus, it is respectfully submitted that dependent claim 29 is likewise independently allowable.

New claim 89 is claim 1 (as set forth in the Response to the Office Action dated August 6, 2004) with the addition of the suction drum. It is likewise believed that new claim 89 is allowable for at least the reasons set forth above with respect to dependent claim 29. Allowance of new claim 89 is respectfully requested.

Amended independent claim 36 is likewise allowable over the prior art of record. In the Office Action, claim 36 was rejected based upon Stinger. As amended, claim 36 recites that the temperature of the exhaust vapor from the turbine is adapted to be reduced via direct contact and mixing with liquid working fluid in the desuperheater to produce a cooled exhaust vapor exiting the desuperheater heat exchanger that is cooled to its approximate dew point temperature. Amended claim 36 further recites that the condenser heat exchanger is adapted to receive the cooled exhaust vapor exiting the desuperheater, wherein the temperature of the cooled exhaust vapor is adapted to be reduced via heat transfer with a cooling liquid in the condenser heat exchanger. Support for the claim amendment can be found at, for example, page 17, line 20 – page 18, line 8, and the associated drawings discussed therein. As amended, it is respectfully submitted that claim 36 is allowable over the prior art of record.

The Office Action did not set forth a detailed basis for the rejection of claim 36 based on Stinger. It is clear that amended claim 36 is allowable over Stinger and the other art of record. In Stinger, the stream mixer 4 receives two streams of vapor, e.g., two streams of propane vapor to produce a combined propane vapor stream “C.” This combined vapor stream “C” is sent to an indirect heat exchanger 6 where heat is transferred from the stream “C” to the secondary propane

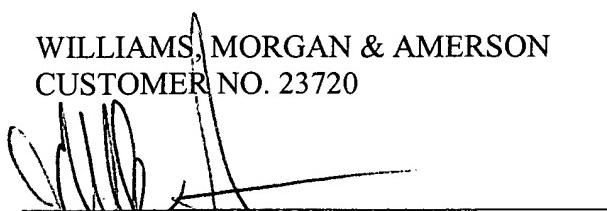
stream "B." Thereafter, the cooled stream "C" is directed to a condenser 7 where the vapor stream "C" is condensed to a liquid. ¶ 0010.

As thus understood, it is respectfully submitted that Singer is far afield from amended claim 36. In Stinger, the mixer 4 receives two vapor streams and a combined vapor stream exits the mixer 4. In contrast, amended claim 36 recites that the desuperheater heat exchanger receives a portion of the liquid working fluid and exhaust vapor from the turbine to thereby produce a cooled exhaust vapor exiting the desuperheater that is cooled to its approximately dew point temperature. Such a system is simply not disclosed or suggested in Stinger or any other art of record. It appears that the mixer 4 is simply a means for combining the two entering vapor streams to produce a combined vapor stream "C" that is subjected to further processing. There is certainly no suggestion to introduce a liquid and a vapor into a desuperheater to produce a cooled vapor that is cooled to its approximate dew point temperature.

In view of the foregoing, it is respectfully submitted that all claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

WILLIAMS, MORGAN & AMERSON
CUSTOMER NO. 23720



J. Mike Amerson
Reg. No. 35,426
10333 Richmond, Suite 1100
Houston, Texas 77042
(713) 934-4056
(713) 934-7011 (facsimile)

Date: May 20, 2005

ATTORNEY FOR APPLICANTS